REMARKS

Election/Restrictions:

Applicants elected without traverse Group I (claims 1-16). The examiner withdrew claims 17 and 18 from further consideration, as being drawn to a non-elected invention. Subsequently, the examiner rejoined claim 18 as a method of making the allowable polymer of claim 3. Applicants acknowledge with appreciation the examiner's rejoining of claim 18. Applicants respectfully submit that claim 1 is allowable, and consequently, request rejoinder of claim 17 for the same reasons.

Claims:

Claims 1-18 are pending in the application. Claims 3-5, 11-13 and 18 have been allowed; and claim 7 has been identified as containing allowable subject matter. Applicants note with appreciation Examiner Garrett's allowance of claims 3-5, 11-13 and 18. Claims 1, 2, 6-10, and 14-16 stand rejected under 35 U.S.C. § 112, second paragraph. Claim 1 stands rejected under 35 U.S.C. § 102(a). Claims 1, 2 and 8 stand rejected under 35 U.S.C. § 102(b). Claims 6, 9, 10 and 14-16 stand rejected under 35 U.S.C. § 103(a). By this Amendment, claims 1, 6, 7 and 17 are amended. No new matter is presented by the amendments. Accordingly, applicants respectfully request entry of the amendments and reconsideration and allowance of pending claims 1-18.

The 35 U.S.C. § 112 Rejections

The examiner rejected claims 1, 2, 6-10, and 14-16 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The examiner alleges that "[t]he variable 'n' in the formulas of claims 1 and 6 has not been defined and accordingly, it is unclear how many repeating units in parenthesis may be present in the polymer." Office Action, pages 2-3. The applicants have amended claims 1, 6, 7 and 17 to recite **[Insert description of amendment here...]**. Support for this amendment may be found in the specification **[insert reference to specification here]**.

The 35 U.S.C. § 102 Rejections

The examiner rejected claim 1 under 35 U.S.C. § 102(a) as being anticipated by two references:

(A) Y. Park et al., *Photoelectron Spectroscopy Study of Electronic Structures of Poly(*p*-phenylenevinylene) Derivatives*, Journal of the Korean Physical Society, Vol. 37, No. 1, at 59-63 (July 2000); and

(B) Yong Hee Kim et al., *Time-Resolved Photoluminescence Study of Poly(*p*-phenylenevinylene) Derivative Polymers,* Chemical Materials, 2000 Vol.12, at 1067-1070.

The examiner alleges that each journal article "discloses a compound, PCzPV, which is the same as instant formula 1 wherein X_1-X_5 = hydrogen." Office Action, page 3. The applicants have amended claim 1 to include the additional language "wherein at least one of the X substituents is not a hydrogen." Support for this amendment may be found in Figure 1, Example 1, and Example 2, where the synthesized luminescent polymer (preparation Example 2) contains one X substituent which is not a hydrogen. Applicants submit that amended claim 1 is allowable, and respectfully request reconsideration and allowance of amended claim 1.

The examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by the journal article: Yong Hee Kim et al., *Time-resolved photoluminescence study of PPV derivatives with electron - and hole - transporting moieties*, Synthetic Metals, Vol. 102 (1999), at 961-962. Regarding this rejection, the examiner repeats the grounds for the 102(a) rejection above. Applicants submit that amended claim 1 is allowable, and respectfully request reconsideration and allowance of amended claim 1.

The examiner rejected claims 1, 2 and 8 under 35 U.S.C. § 102(b) as being anticipated by the journal article: Sung-Jae Chung et al., *Highly Efficient Light-Emitting Diodes Based on an Organic-Soluble Poly(*p*-phenylenevinylene) Derivative Carrying the Electron-Transporting PBD Moiety*, Advanced Materials (Weinham, Germany), 10(14), 1112-1116, (1998). Regarding claim 1, the examiner repeats the grounds for the 102(a) rejection stated above. Regarding claim 2, the examiner alleges that "[t]he average molar mass of the PCzPV compound is 16,000 and the poly-dispersity index is 1.87." Office Action, page 4. Regarding

claim 8, the examiner alleges that "[t]he PCzPV compound is taught as a light emitting layer between an ITO anode and an aluminum cathode per instant claim 8." Office Action, page 4. The applicants have amended claim 1 as stated above. Claims 2 and 8 are dependent from claim 1. For at least the same reasons that amended claim 1 is allowable, claims 2 and 8 are also allowable. Thus, applicants respectfully request reconsideration and allowance of claims 2 and 8.

The 35 U.S.C. § 103 Rejections

The examiner rejected claims 6, 9, 10, and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Advanced Materials (Weinheim, Germany), 10(14), pages 1112-1116 ("Advanced Materials"), in view of U.S. Patent No. 6,368,732 to Jin *et al* ("Jin"). Applicants respectfully traverse and request reconsideration of these rejections.

Claims 9 and 10 depend from claim 8, which depends from claim 1. Regarding claims 9 and 10, the examiner relies on the rejection of claims 1 and 8, alleging that Advanced Materials teaches that PCzPV "is disposed between an anode or a cathode, but fails to teach a device that is multi-layered comprising also a buffer layer adjacent to the hole-blocking layer adjacent the cathode." Office Action, pages 4-5. The examiner alleges that Jin teaches the structure of an electroluminescent device may be "anode/buffer layer/hole transporting layer/light emitting layer/hole blocking layer/cathode (see col. 8, lines 12-14)" or "anode/light emitting layer/cathode (see col. 8, line 8)" — both structures are recited in claim 8 of the instant application. Office Action, page 5. The examiner further alleges that "[t]he light emitting layer of Jin et al. also comprises a PPV derivative" and "the Advanced Materials article discloses as the device structure using the PPV derivative, PCzPV" — the PPV derivative is also recited in claim 8. Office Action, page 5. The applicants have amended claim 1 has to include the language "wherein at least one of the X substituents is not a hydrogen." Support for this amendment may be found in Figure 1, Example 1, and Example 2, where the synthesized luminescent polymer (preparation Example 2) contains one X substituent which is not a hydrogen. Applicants submit that for at least the same reason that amended claim 1 is allowable, claim 8 also is allowable.

Regarding dependent claim 9, the examiner further alleges that "[t]he Jin buffer layer is comprised of polythiophene, polyaniline, polyacetylene, polypyrrole, or poly(p-phenylenevinylene) derivatives." Office Action, page 5. Regarding dependent claim 10, the examiner further alleges that "the hole blocking layers are preferably made of LiF or MgF2 (see col. 8, lines 14-17)." Office Action, page 5. The applicants submit that for at least the same reason that claim 8 is allowable, dependent claims 9 and 10 are also allowable.

Regarding independent claim 6, on pages 5 and 6 of the Office Action the examiner alleges that the light emitting layer of Jin:

> is comprised of a PPV-based polymer (see abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the PPV-based PCzPV light-emitting polymer taught by Advanced Materials in the light-emitting layer of Jin et al. comprising a PPV-derivative polymer, because, absent evidence otherwise, "it is prima facie obvious to combine two compositions taught by the prior art as useful for the same purpose".

Applicants have amended claim 6 to include the additional language "wherein at least one of the X substituents is not a hydrogen." Support for this amendment may be found in Figure 1, Example 1, and Example 2, where the synthesized luminescent polymer (preparation Example 2) contains one X substituent which is not a hydrogen. Applicants submit that amended claim 6 is patentable over the cited prior art, and consequently, respectfully request reconsideration and allowance of independent claim 6.

Claim 14 depends from claim 6. Regarding dependent claim 14, the examiner alleges that Jin "teaches an electroluminescent device comprising an anode/buffer layer/hole transporting layer/light emitting layer/hole blocking layer/cathode structure per instant claim 14." Office Action, page 5. Claim 14 depends from claim 6. The applicants submit that for at least the same reason amended claim 6 is allowable, dependent claim 14 is also allowable.

Claims 15 and 16 depend from claim 14. Regarding dependent claim 15, the examiner alleges that the buffer layer in Jin is "polythiophene, polyaniline, polyacetylene, polypyrrole, or poly(p-phenylenevinylene) derivatives." Office Action, page 5. Regarding dependent claim 16, the examiner alleges that the hole blocking layers of Jin "are preferably made of LiF

or MgF2." Office Action, page 5. The applicants submit that for at least the same reason claim 14 is allowable, dependent claims 15 and 16 are also allowable.

Allowable Subject Matter

The Office Action has indicated that claims 3-5, 11-13 and 18 are allowable. The examiner also indicated that claim 7 would be allowable if rewritten in independent form including all of the limitations of the base claim. Applicants note with appreciation the examiner's indication of allowable subject matter. Applicants have incorporated the suggested changes into amended claim 7.

The examiner rejoined claim 18 with the application as a method of making the polymer of claim 3. The applicants respectfully submit that claim 17 also should be rejoined as a method of making the allowable polymer of claim 1. Applicants amended claim 17 to be consistent with the language of claim 1. Applicants therefore respectfully request reconsideration and allowance of claim 17.

CONCLUSION

In view of the foregoing, applicants respectfully submit that claims 1-18, as amended, are now in condition for allowance. Applicants respectfully request entry of the amendments and allowance of these claims. Should there be any questions concerning the foregoing, Examiner Garrett is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,
LEE & STERBA, P.C.

Dated: June 27, 2003 By: _____

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PETITION and

DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.